

PRELIMINARY AMENDMENT  
U.S. Appln. No. 10/769,915

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (original): A method of producing minute metal balls, comprising the steps of cutting a wire material having a diameter  $\phi$  at predetermined distances to provide metal pieces having a cut length  $L$  equal to or smaller than 2 mm and a ratio  $L/\phi$  in a range of  $0.1 \leq L/\phi \leq 3.0$ , and introducing the metal pieces into a plasma flame to spheroidize the metal pieces.
2. (original): A method of producing minute metal balls, comprising the steps of cutting a wire material having a diameter  $\phi$  at predetermined distances to provide metal pieces having a cut length  $L$  equal to or smaller than 2 mm, a ratio  $L/\phi$  in a range of  $0.1 \leq L/\phi \leq 3.0$  and an average volume equal to or smaller than  $5 \times 10^{-4} \text{ cm}^3$ , and introducing the metal pieces into a plasma flame to spheroidize the metal pieces.
3. (original): A method of producing minute metal balls, comprising the steps of cutting a wire material having a diameter  $\phi$  at predetermined distances to provide metal pieces having a cut length  $L$  equal to or smaller than 2 mm, a ratio  $L/\phi$  in a range of  $0.1 \leq L/\phi \leq 3.0$ , an average volume equal to or smaller than  $5 \times 10^{-4} \text{ cm}^3$ , and a CV value of volumes equal to or smaller than 5 % calculated according to the following equation:

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CV value =  $\sigma_v/V_{ave} \times 100 (\%)$ ,

wherein  $V_{ave}$  is an average volume of the metal pieces, and  $\sigma_v$  is a standard deviation in a distribution of volumes of the metal pieces; and introducing the metal pieces into a plasma flame to spheroidize the metal pieces.

4. (currently amended): A method of producing minute metal balls according to claim 1 ~~any of claims 1 to 3~~, wherein the metal pieces are made of any metal selected from the group consisting of Cu, Ag, Au and Al, or an alloy as a main of any of these metals.

5. (currently amended): A method of producing minute metal balls according to claim 1 ~~any of claims 1 to 3~~, wherein the metal pieces are made of any metal selected from the group consisting of Fe, Ti, W, Ni and Cr, or an alloy as a main of any of these metals.

6. (currently amended): A method of producing minute metal balls according to claim 1 ~~any of claims 1 to 3~~, wherein the metal pieces are introduced into the plasma flame forming a reducing atmosphere.

7. (currently amended): A method of producing minute metal balls according to claim 1 ~~any of claims 1 to 3~~, wherein 1 to 20 % by volume of a hydrogen gas is contained in a plasma operating gas for generating the plasma flame.

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8. (currently amended): A method of producing minute metal balls according to claim 1 any of claims 1 to 3, wherein RF plasma is used as the plasma flame.

**Please add the following new claims.**

9. (new): A method of producing minute metal balls according to claim 2, wherein the metal pieces are made of any metal selected from the group consisting of Cu, Ag, Au and Al, or an alloy as a main of any of these metals.

10. (new): A method of producing minute metal balls according to claim 2, wherein the metal pieces are made of any metal selected from the group consisting of Fe, Ti, W, Ni and Cr, or an alloy as a main of any of these metals.

11. (new): A method of producing minute metal balls according to claim 2, wherein the metal pieces are introduced into the plasma flame forming a reducing atmosphere.

12. (new): A method of producing minute metal balls according to claim 2, wherein 1 to 20 % by volume of a hydrogen gas is contained in a plasma operating gas for generating the plasma flame.

13. (new): A method of producing minute metal balls according to claim 2, wherein RF plasma is used as the plasma flame.

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14. (new): A method of producing minute metal balls according to claim 3, wherein the metal pieces are made of any metal selected from the group consisting of Cu, Ag, Au and Al, or an alloy as a main of any of these metals.

15. (new): A method of producing minute metal balls according to claim 3, wherein the metal pieces are made of any metal selected from the group consisting of Fe, Ti, W, Ni and Cr, or an alloy as a main of any of these metals.

16. (new): A method of producing minute metal balls according to claim 3, wherein the metal pieces are introduced into the plasma flame forming a reducing atmosphere.

17. (new): A method of producing minute metal balls according to claim 3, wherein 1 to 20 % by volume of a hydrogen gas is contained in a plasma operating gas for generating the plasma flame.

18. (new): A method of producing minute metal balls according to claim 3, wherein RF plasma is used as the plasma flame.